

What is claimed is:

CLAIMS

- 5 1. A method comprising:
partitioning data into segments of the data;
storing in memory a set of checksums of the segments of the data;
selecting a portion of the data, the portion of the data comprising at least one of a
subset of the segments of the data and at least one part of at least one segment of the data;
10 and
determining a checksum of the portion of the data, the checksum of the portion of
the data being determined, based, at least in part, upon at least one of a checksum of the
subset of the segments of the data and a checksum of the at least one part of the at least
one segment of the data, the checksum of the subset of the segments of the data being
15 based, at least in part, upon respective checksums, read from the set of checksums stored
in the memory, of segments of the data comprised in the subset of the segments of the
data.
2. The method of claim 1, wherein:
20 the method further comprises determining, based at least in part upon the
checksum of the portion of the data, a checksum of the packet;
the selecting of the portion of the data is based, at least in part, upon a size of a
packet; and
the packet comprises the portion of the data and the checksum of the packet.
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3. The method of claim 2, wherein:
the size of the packet is selected based, at least in part, upon one or more flow
control parameters.
- 30 4. The method of claim 3, wherein:

the one or more flow control parameters are based, at least in part, upon one or more of the following: a level of network congestion, a maximum packet size, and a maximum data transfer amount.

- 5 5. The method of claim 4, wherein:
 the checksum of the packet comprises a transmission control protocol (TCP)
 segment checksum; and
 the one or more flow control parameters indicate, at least in part, status of a TCP
 connection.
- 10 6. The method of claim 1, wherein:
 each of the segments of the data has an identical respective size equal to N bytes;
 the data has a size equal to M bytes; and
 the set of checksums includes a number of checksums equal to twice the quotient
15 of M divided by N.
7. The method of claim 1, the method further comprising:
 storing the segments of the data in computer-readable memory;
 determining the checksum of the at least one part of the at least one segment of
20 the data; and
 contemporaneously, at least in part, with the determining of the checksum of the
 at least one part of the at least one segment of the data, at least one of:
 reading, at least in part, the at least one part of the at least one segment of
 the data from the computer-readable memory; and
25 storing, at least in part, the at least one part of the at least one segment of
 the data in another computer-readable memory.
8. An apparatus comprising:
 circuitry that is capable of:
30 partitioning data into segments of the data;
 storing in memory a set of checksums of the segments of the data;

selecting a portion of the data, the portion of the data comprising at least one of a subset of the segments of the data and at least one part of at least one segment of the data; and

determining a checksum of the portion of the data, the checksum of the
5 portion of the data being determined, based, at least in part, upon at least one of a checksum of the subset of the segments of the data and a checksum of the at least one part of the at least one segment of the data, the checksum of the subset of the segments of the data being based, at least in part, upon respective checksums, read from the set of checksums stored in the memory, of segments of the data comprised in the subset of the
10 segments of the data.

9. The apparatus of claim 8, wherein:

the circuitry is also capable of determining, based at least in part upon the checksum of the portion of the data, a checksum of the packet;

15 the circuitry is also capable of selecting of the portion of the data based, at least in part, upon a size of a packet; and

the packet comprises the portion of the data and the checksum of the packet.

10. The apparatus of claim 9, wherein:

20 the circuitry is also capable of selecting the size of the packet based, at least in part, upon one or more flow control parameters.

11. The apparatus of claim 10, wherein:

25 the one or more flow control parameters are based, at least in part, upon one or more of the following: a level of network congestion, a maximum packet size, and a maximum data transfer amount.

12. The apparatus of claim 11, wherein:

30 the checksum of the packet comprises a transmission control protocol (TCP) segment checksum; and

the one or more flow control parameters indicate, at least in part, status of a TCP connection.

13. The apparatus of claim 8, wherein:

- 5 each of the segments of the data has an identical respective size equal to N bytes;
the data has a size equal to M bytes; and
the set of checksums includes a number of checksums equal to twice the quotient of M divided by N.

10 14. The apparatus of claim 8, wherein:

the circuitry is also capable of storing the segments of the data in computer-readable memory, determining the checksum of the at least one part of the at least one segment of the data, and contemporaneously, at least in part, with the determining of the checksum of the at least one part of the at least one segment of the data, at least one of:

- 15 reading, at least in part, the at least one part of the at least one segment of the data from the computer-readable memory; and
storing, at least in part, the at least one part of the at least one segment of the data in another computer-readable memory.

20 15. An article comprising:

a storage medium that stores instructions that when executed by a machine result in the following:

- partitioning data into segments of the data;
storing in memory a set of checksums of the segments of the data;
25 selecting a portion of the data, the portion of the data comprising at least one of a subset of the segments of the data and at least one part of at least one segment of the data;
and
determining a checksum of the portion of the data, the checksum of the portion of the data being determined, based, at least in part, upon at least one of a checksum of the
30 subset of the segments of the data and a checksum of the at least one part of the at least one segment of the data, the checksum of the subset of the segments of the data being

based, at least in part, upon respective checksums, read from the set of checksums stored in the memory, of segments of the data comprised in the subset of the segments of the data.

- 5 16. The article of claim 15, wherein:
 the instructions when executed by the machine also result in determining, based at
 least in part upon the checksum of the portion of the data, a checksum of the packet; and
 the selecting of the portion of the data is based, at least in part, upon a size of a
 packet; and
 10 the packet comprises the portion of the data and the checksum of the packet.

17. The article of claim 16, wherein:
 the size of the packet is selected based, at least in part, upon one or more flow
 control parameters.

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18. The article of claim 17, wherein:
 the one or more flow control parameters are based, at least in part, upon one or
 more of the following: a level of network congestion, a maximum packet size, and a
 maximum data transfer amount.

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19. The article of claim 18, wherein:
 the checksum of the packet comprises a transmission control protocol (TCP)
 segment checksum; and
 the one or more flow control parameters indicate, at least in part, status of a TCP
 25 connection.

20. The article of claim 15, wherein:
 each of the segments of the data has an identical respective size equal to N bytes;
 the data has a size equal to M bytes; and
 30 the set of checksums includes a number of checksums equal to twice the quotient
 of M divided by N.

21. The article of claim 15, wherein the instructions when executed by the machine also result in:

- storing the segments of the data in computer-readable memory;
- 5 determining the checksum of the at least one part of the at least one segment of the data; and
- contemporaneously, at least in part, with the determining of the checksum of the at least one part of the at least one segment of the data, at least one of:
 - reading, at least in part, the at least one part of the at least one segment of
 - 10 the data from the computer-readable memory; and
 - storing, at least in part, the at least one part of the at least one segment of the data in another computer-readable memory.

22. A system comprising:

- 15 a circuit board that includes a circuit card slot; and
- a circuit card that is capable of being coupled to the circuit board via the circuit card slot, the circuit card including circuitry that is capable of:
 - partitioning data into segments of the data;
 - storing in memory a set of checksums of the segments of the data;
 - 20 selecting a portion of the data, the portion of the data comprising at least one of a subset of the segments of the data and at least one part of at least one of the segments of the data; and
 - determining a checksum of the portion of the data, the checksum of the portion of the data being determined, based, at least in part, upon at least one of a
 - 25 checksum of the subset of the segments of the data and a checksum of the at least one part of the at least one of the segments of the data, the checksum of the subset of the segments of the data being based, at least in part, upon respective checksums, read from the set of checksums stored in the memory, of segments of the data comprised in the subset of the segments of the data.

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23. The system of claim 22, wherein:

the circuit board includes a host processor and a bus that couples the host processor to the circuit card slot; and

when the circuit card is coupled to the circuit board via the circuit card slot, the circuit card is coupled to the host processor via the bus.

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24. The system of claim 23, wherein:

the circuit card includes computer-readable memory to store the data and at least one buffer memory to store the at least one part of the at least one of the segments of the data.

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25. The system of claim 23, wherein:

the circuit board includes host memory that is capable of storing the data;

the circuit card includes computer-readable memory; and

when the circuit card is coupled to the circuit board via the circuit card slot, the

15 circuitry is capable of receiving the data from the host memory and storing the data in the computer-readable memory.

26. The system of claim 25, wherein:

the circuitry is also capable of generating a transmission control protocol (TCP)

20 packet that comprises the portion of the data and the checksum of the portion of the data.

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